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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/790,712

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Mignard Francois

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EXAMINER

ZHENG, LOIS L

ART UNIT

PAPER NUMBER

1742

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/790,712

Applicant(s)

FRANCOIS, MIGNARD

Examiner

Lois Zheng

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 7-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of invention Group I, claims 1-6, in the reply filed on 19 December 2006 is acknowledged.
2. Claims 7-12 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention Group II, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 19 December 2006.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "8" has been used to designate both the zone and the heating means(see page 6 of the specification).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. "the treatment type" on page 8, line 16, of the specification should be change to "the treatment time".

Means-Plus-Function Language

5. Instant claims 3-6 contain the flowing terms written in means-plus-function format, and have been interpreted as follows:

"means (8) for heating the strip" (claim 3) and "heating means (8)" is in proper means-plus-function format and is defined as a gas furnace of the naked flame or indirect heating type, or an electromagnetic induction furnace as discussed between lines 16-27 on page 6 of the instant specification.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. JP 2001-059133(Shimizu).

Shimizu teaches an continuous hot-dip galvanizing process comprising passing the steel sheet containing oxidizable elements such as Zi, Mn and Cr to oxidation treatment in air to form an oxide film before entering a reduction annealing furnace prior to hot dip galvanization(abstract, paragraphs[0010-0012]). Shimizu further teaches that

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the oxidation temperature should be maintained at 200-650°C and the treatment time should be maintained at 5-100seconds(paragraph 0011-0012].

Regarding claims 1-2, the continuous hot-dip galvanizing process of Shimizu is substantially the same as the claimed invention. The oxidation temperature of 200-650°C as taught by Shimizu overlaps the claimed oxidation temperatures of 150-400°C and 150-300°C as recited in instant claims 1-2. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed oxidation temperature range from the disclosed range of Shimizu would have been obvious to one skilled in the art since Shimizu teaches the same utilities in its' disclosed oxidation temperature range.

Regarding the claimed controlling of temperature/time pair, Shimizu teaches maintaining the oxidation temperature and time in a preferred range. In addition, the oxidation temperature and treatment time has an inverse relationship, that is, higher oxidation temperature leads to lower treatment time to produce the same oxide film thickness, and vice versa. Therefore, one of ordinary skill in the art would have found it obvious to have controlled the temperature/time pair in the process of Shimizu in order to control the thickness of the oxide film.

Regarding claim 3, Shimizu further teaches using indirect induction heating or direct fire or energization heating for the oxidation treatment(paragraph [0012]), one of ordinary skill in the art would have found it obvious to have varied power to the heating means of the oxidation treatment of Shimizu in order to control the oxidation temperature.

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8. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu, and further in view of Halley US 3,518,109(Halley).

The teachings of Shimizu are discussed in paragraph 7 above. However, Shimizu does not explicitly teach the claimed modification of strip length between the heating means and the reducing furnace to control oxidation treatment time as claimed.

Halley teaches that in a hot dip galvanizing process, desirable coating thickness can be obtained by adjusting the strip length(col. 1 lines 25-32).

Regarding claims 4 and 6, since both galvanizing step of Halley and oxidation step of Shimizu are directed towards forming a film on the surface of the metal substrate, one of ordinary skill in the art would have found it obvious to have vary the length of the strip between the oxidation heating means and the reducing furnace of Shimizu in view of the teachings of Halley, thereby, controlling the oxidation time duration in order to produce desirable coating thickness as taught by Shimizu.

Allowable Subject Matter

9. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not teach or fairly suggest, the claimed hot dip galvanizing process wherein the distance between the outlet of the heating means for the oxidation treatment and the inlet of the galvanizing furnace is modified by moving the heating means along the direction of the strip as claimed:

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Delaunay et al. US 6,913,658 B2 teaches subjecting the metal strip to oxidation treatment prior to reduction treatment in order to limit the formation of oxidized deposits of addition element such as Si, Cr on the surface of the metal strip.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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